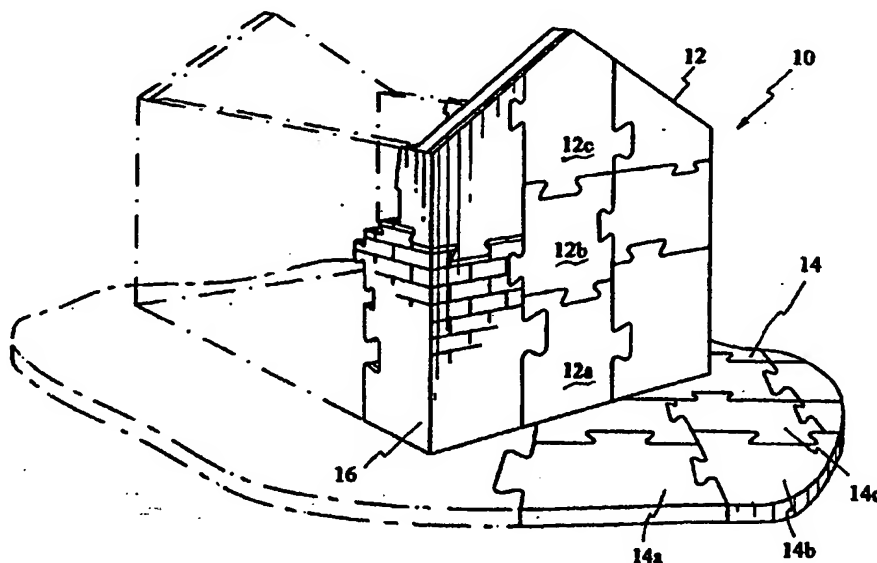




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(21) International Application Number: PCT/CA95/00305 (22) International Filing Date: 24 May 1995 (24.05.95) (30) Priority Data: 2,124,243                      25 May 1994 (25.05.94)                      CA (71) Applicant (for all designated States except US): DISTRIBUTIONS MURALEX INC. [CA/CA]; 934 Cote de Liesse Road, Town of Mount Royal, Québec H4T 2A5 (CA). (72) Inventors; and (75) Inventors/Applicants (for US only): BENOIT, Pierre [CA/CA]; 365 Leacross, Mont-Royal, Québec H3P 1L9 (CA). GAREAU, David [CA/CA]; 109 Denault, Kirkland, Québec H3J 3X4 (CA). (74) Agents: GEORGIEV, Stephan, P. et al.; Smart & Biggar, Bureau 3400, 1000 de la Gauchetière St. West, Montréal, Québec H3B 4W5 (CA).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).  Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	

(54) Title: THREE-DIMENSIONAL PUZZLE GAME



## (57) Abstract

A corner element of a puzzle game that constitutes a three-dimensional pictorial representation of a building-like structure. The corner element comprises first and second backing members bonded to a flexible lithographic film. A hinge area separates the first and second backing members, allowing to bring them in a corner configuration by folding the lithographic film at the hinge area. The film has an exposed image-bearing surface constituting a pictorial entity that contributes to a complete representation of the building-like structure. The corner element is made from a blank that includes a layer of backing material laminated to the lithographic film. The backing material is die-cut at controlled depth to form the first and second backing members in a spaced apart relationship, separated by a waste strip. Prior to assembling the puzzle pieces, the user is required to peel off the waste strip from the blank in order to form the hinge area between the first and second backing members.

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**TITLE**      **THREE-DIMENSIONAL PUZZLE GAME****FIELD OF THE INVENTION**

5            The present invention relates to amusement devices,  
more particularly to a puzzle game consisting of a  
multitude of irregularly shaped pieces that are fitted  
together to form a three-dimensional pictorial  
representation of a building-like structure.

10

**BACKGROUND OF THE INVENTION**

          A puzzle game is a well-known amusement device that  
tests the ingenuity and patience of the player. With  
15 commonplace puzzle games, the player is required to  
correctly fit together a collection of small planar  
pieces. Each piece has an image-bearing surface  
constituting an individual pictorial entity. When the  
various pieces of the puzzle are correctly combined, the  
20 pictorial entities visually unite to form a large complete  
image. These types of puzzle games have a bi-dimensional  
character because all the pieces are interlocked in a co-  
planar relationship and the resulting assemblage is flat.

25            To increase the satisfaction and pleasure derived  
from a puzzle game, toy manufacturers have developed in  
the past recent years puzzle games providing a three-

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dimensional pictorial representation of a building-like structure. Such puzzle games include wall pieces that are interlocked in a planar configuration through dovetail joints to form the walls of the building. The walls are  
5 joined to one another at the corners of the building by straight tenon and mortise joints that allow the wall pieces on either side of a corner to be united at right angle. The building walls are erected and stand on a horizontal base that is assembled from a plurality of  
10 interlocked base pieces.

The pieces of three-dimensional puzzle games are usually manufactured from polymeric foam backing having the density and thickness dimension required for bearing  
15 the weight of the building-like structure. The foam backing is laminated with lithographic film providing each puzzle piece with an image-bearing surface.

A critical element of a three-dimensional puzzle game  
20 is the ability of the planar pieces to unite at in a non-planar configuration to form corners. Prior art designs rely on the frictional engagement between a straight tenon and a conforming mortise to interlock the pieces into a corner configuration and prevent unwanted separation that  
25 may cause the erected puzzle structure to collapse. When the puzzle pieces are fresh the dimensional tolerances are close to nominal values which makes possible to attain a

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comparatively tight fit at the corner joints. Accordingly, the level of frictional engagement tenon/mortise is high enough to prevent unintended corner joints separation. However, over time, the fit  
5 tenon/mortise may loosen as a result of successive assembly/disassembly of the puzzle parts, or changes in the polymeric foam due to aging. Consequently, the puzzle structure is no longer structurally sound and may partially or totally collapse when subjected a small  
10 accidental impact.

#### OBJECTS AND STATEMENT OF THE INVENTION

An object of the present invention is a new corner  
15 element for use in a three-dimensional puzzle game.

Another object of the invention is an improved puzzle game utilizing the aforementioned corner element.

20 As embodied and broadly described herein, the invention provides a corner (for the purpose of this specification "corner" means the region of the angle formed between two non co-planar surfaces that may be at right angle or at any other non-planar angular  
25 relationship) element of a puzzle that constitutes a three-dimensional pictorial representation of a building-like (for the purpose of this specification "building" is

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intended to encompass the constructed edifice as well as the immediate surroundings such as the garden, fences and monuments, among others) structure, said corner element comprising:

- 5           - first and second generally planar backing members;
- a sheet of flexible material bonded to said first and second backing members in a face-to-face relationship therewith, said first and second backing members including  
10           respective peripheral edge portions in a spaced apart relationship defining therebetween a hinge area, whereby said backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at said hinge area;
- a peripheral edge of said corner element including  
15           at least one joint member capable of interlocking engagement with a complementary joint member of another element of the puzzle; and
- said corner element also including an image-bearing surface that constitutes an individual pictorial entity  
20           contributing to a complete representation of the building structure.

Most preferably, the peripheral edges of the corner element are provided with one or more joint members  
25           capable of interlocking engagement with complementary joint members of the wall pieces of the puzzle in order to unite the corner element to the planar walls of the

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building-like structure. The joint members have a male/female configuration.

5 It will be apparent that this corner constructions is significantly more stable and resistant than prior art designs. Unlike the approach which relies solely on the frictional engagement between straight tenon/mortise joints to create a structural union between the walls of the building-like structure, a hinge joint provides a continuous sheet of flexible material over the corner area of the puzzle. Hence, such joint is unlikely to suffer from unintended separation in use.

15 It is preferred to provide the corner element with an agency for positively maintaining the first and second backing members in the corner configuration and preventing them to fold back to the planar arrangement. In one embodiment, the agency is constituted by an additional pair of backing members bonded to the sheet of flexible material and capable of mutual interlocking engagement in a co-planar relationship when the first and second backing members assume the corner arrangement. Once interlocked, the additional pair of backing members preclude the first and second backing members from acquiring their original planar relationship.

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As embodied and broadly described herein, the invention provides a blank (for the purpose of this specification "blank" means a semifinished product that the user must alter in order to provide a functional corner element) of a corner element for use in a puzzle that constitutes a three-dimensional pictorial representation of a building structure, said blank comprising:

- first and second generally planar backing members;
- an intermediate member between said first and second backing members;

- a sheet of flexible material bonded to said first and second backing members and to said intermediate member in a face-to-face relationship therewith, said intermediate member being removable from blank to form between said first and second backing members a hinge area, whereby said first and second backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at said hinge area;

- a peripheral edge of said blank including at least one joint member capable of interlocking engagement with a complementary joint member of another element of the puzzle; and

- said blank also including an image-bearing surface that constitutes an individual pictorial entity

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contributing to a complete representation of the building structure.

Most preferably, the blank is manufactured by laminating a sheet of backing material, such as polymeric foam to a layer of lithographic film providing the image-bearing surface of the corner element. The backing material is die-cut at controlled depth to form the first and second backing members in a spaced apart relationship, with a waste strip therebetween. The die-cutting operation is performed without affecting the integrity of the lithographic film. Prior to assembling the puzzle pieces, the user is required to peel off the waste strip in order to form the hinge area between the first and second backing members, so the corner element can be folded.

As embodied and broadly described herein, the invention also provides a puzzle game for assembly into a three-dimensional building-like structure including:

- a first set of planar wall pieces capable of interlocking in a plane to form a first wall of the building structure;
- a second set of planar wall pieces capable of interlocking in a plane to form a second wall of the building-like structure, each said wall pieces including an image-bearing surface constituting an individual

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pictorial entity contributing to a complete representation of the building-like structure;

- a corner piece for establishing a union between said first and second walls, said corner piece including:

5           a) first and second generally planar backing members;

10           b) a sheet of flexible material bonded to said first and second backing members in a face-to-face relationship therewith, said first and second backing members including respective peripheral edge portions in a spaced apart relationship defining therebetween a hinge area, whereby said backing members are capable of acquiring a corner configuration by bending movement of said sheet of flexible material at said hinge area;

15           c) a peripheral edge of said corner piece including a first joint member capable of interlocking engagement with a complementary joint member of a wall piece from said first set in order to unite said corner piece with said first wall, and a second joint member  
20           capable of interlocking engagement with a complementary joint member of a wall piece from said second set in order to unite said corner piece with said second wall; and

25           d) said corner piece including an image-bearing surface that constitutes an individual pictorial entity contributing to a complete representation of the building-like structure, whereby upon assembly of said pieces the image-bearing surfaces thereof uniting visually to provide

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image continuity over said first wall, said second wall and said corner piece.

As embodied and broadly described herein, the invention also provides a puzzle game for assembly into a three-dimensional building-like structure including:

- a first set of planar wall pieces capable of interlocking in a plane to form a first wall of the building structure;
- 10       - a second set of planar wall pieces capable of interlocking in a plane to form a second wall of the building-like structure, each said wall pieces including an image-bearing surface constituting an individual pictorial entity contributing to a complete representation of the building-like structure;
- 15       - a blank of corner piece for use in establishing a union between said first and second walls, said blank including:
  - a) first and second generally planar backing
  - 20       members;
  - b) an intermediate member between said first and second backing members;
  - c) a sheet of flexible material bonded to said first and second backing members and to said intermediate
  - 25       member in a face-to-face relationship therewith, said intermediate member being removable from blank to form between said first and second backing members a hinge

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area, whereby said first and second backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at said hinge area in order to form said corner piece;

5           d) a peripheral edge of said blank including a first joint member capable of interlocking engagement with a complementary joint member of a wall piece from said first set in order to unite said corner piece with said first wall, and a second joint member capable of  
10 interlocking engagement with a complementary joint member of a wall piece from said second set in order to unite said corner piece with said second wall; and

          d) said blank including an image-bearing surface that constitutes an individual pictorial entity  
15 contributing to a complete representation of the building-like structure, whereby upon assembly of said pieces the image-bearing surfaces thereof uniting visually to provide image continuity over said first wall, said second wall and said corner piece.

20

#### BRIEF DESCRIPTION OF THE DRAWINGS

- Figure 1 is a perspective view of a puzzle game in accordance with the invention shown in the partially  
25 assembled condition;

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- Figure 2 is an enlarged front elevational view of a corner element in a planar condition of the three-dimensional puzzle game shown in Figure 1;

5        - Figure 3 is a rear elevational view of the corner element shown in Figure 2;

10        - Figure 4 is a cross-sectional view taken along lines 4 - 4 in Figure 3;

15        - Figure 5 is a bottom plan view of the corner element of Figures 1 to 4, shown in the folded condition, i.e. forming an angle;

20        - Figure 6 is a cross-sectional view taken along lines 4 - 4, the corner element being in folded condition; and

25        - Figure 7 is a fragmentary rear elevational view of the corner element in accordance with a variant.

#### DESCRIPTION OF PREFERRED EMBODIMENTS

25        The present invention provides a corner element for use in a puzzle game that is a three-dimensional pictorial representation of a building-like structure. An example of such puzzle game is shown in Figure 1. When fully

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assembled the puzzle game presents the three-dimensional image of a house.

5       The puzzle game 10 includes two main parts, namely a  
constructed edifice 12 (shown in the partially assembled  
condition) and a horizontal base 14 supporting the  
edifice. The base 14 is made up of a plurality of base  
pieces 14a, 14b, 14c, etc., capable of interlocking in a  
plane. In a most preferred embodiment, the interlocking  
10 engagement is achieved by fitting the base pieces together  
by dovetail-type joints that feature a flaring tenon  
fitting into a conforming mortise. Similarly, the edifice  
construction 12 is made from a plurality of wall pieces  
12a, 12b, 12c, etc., fitted together with dovetail-type  
15 joints to form walls.

The present invention provides a corner element 16  
suitable as a transition piece between adjacent vertical  
walls of the edifice construction 12. With reference to  
20 Figures 2 to 6, the corner element 16 includes a plurality  
of panels that assume a non-planar angular relationship  
and interlock with wall pieces forming adjacent  
perpendicular walls of the edifice construction 12. More  
particularly, the corner element 16 comprises a set of  
25 discrete backing members 18, 20, 22 and 24 in the form of  
planar blocks of relatively rigid polymeric foam-like  
material that is approximately a quarter of an inch thick.

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The polymeric foam should possess a sufficient rigidity and density in order to adequately bear the weight of the constructed edifice 12. The backing members 18, 20, 22 and 24 are bonded in a face-to-face relationship to a lithographic film 26 constituting an image-bearing surface of the corner element 16. The image bearing surface is a pictorial entity that cooperates visually with the image bearing surfaces of adjoining puzzle pieces to construct the image of the external surface of the house 12 or any other building-like structure represented by the puzzle game. In the example shown, the lithographic film bears the image of a brick wall.

As discussed in greater detail later, the lithographic film 26 also provides a hinge function by locally bending when the backing members 18, 20, 22 and 24 move angularly one relative to the other. In selecting the material for use as the lithographic film 26, the flexibility characteristics of such material become an important factor so that the lithographic film 26 can adequately perform the function of a hinge without prematurely cracking or tearing.

The peripheral edge portions 28 and 30 of the backing elements 18 and 20 are in a spaced apart relationship defining therebetween a linear hinge area. The hinge area enables the backing elements 18 and 20 to pivot about an

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axis 32 (shown with dashed lines) as a result of a folding movement of the lithographic film 26 at the hinge area, in order to assume a corner configuration. The contours of the peripheral edge portions 28 and 30 define a series of complementary straight tenon and mortise joint members 32 and 34. When the backing members 18 and 20 gradually pivot about hinge line 32, the tenon and mortise joint members 30 and 32 progressively interpenetrate one another until full engagement which is achieved when the backing members 18 and 20 are orthogonal.

The backing elements 22 and 24 have a special function. They serve the purpose of locking the corner element 16 in the folded condition and preclude the main backing elements 18 and 20 from acquiring their original planar relationship. The backing elements 22 and 24 are vertically spaced from backing elements 18 and 20 to provide sufficient clearance allowing the backing elements 22 and 24 to pivot about a horizontal hinge line 36 by folding movement of the lithographic film 26. Peripheral edge interlocking between the main backing members 18 and 20, and the backing members 22 and 24 is achieved by a set of straight tenon and mortise joint members 38 and 40, similar to joint members 32 and 34.

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The backing members 22 and 24 are capable of interlocking engagement in a co-planar relationship by virtue of a flared tenon 42 and a conforming mortise 44.

5           The process for assembling the corner element 16 consists of pivoting the main backing members 18 and 20 about hinge line 32 in order to bring the mating edges of the backing elements 22 and 24 in adjacency. The flared tenon 42 is then inserted in the tapered mortise 44. When  
10   the interlocking engagement is completed, the backing members 22 and 24 are in a co-planar engagement. At this stage, the backing members are orthogonal to one another with the tenon and mortise joint members 32 and 43 fully engaged. Similarly, the backing members 22 and 24 lay at  
15   right angle to main backing members 18 and 20 and the tenon and mortise joint members 38 and 40 are interlocked.

To enable the corner element 16 to mate with the wall pieces of the construction edifice 12, the periphery of  
20   the backing members 18 and 20 are provided with the appropriate number of male and/or female joint members 46. It will be apparent to those skilled in the art that the exact number of joint members 46 for fitting wall pieces to the corner element 16, their precise location as well  
25   as their gender (tenon or mortise) is dictated by the specific application.

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In use, the corner element 16 is placed in the upright position with the backing members 22 and 24 forming the base. Wall pieces are then connected to the periphery of the backing members 18 and 20 to build-up two perpendicular walls. The images printed or otherwise impressed on the lithographic films of the corner element 16 and on the various wall pieces are related in such a way as to provide image continuity over the wall surface. Hence, an observer will perceive a continuous image, a brick wall for instance, by looking at the exposed surface of the construction edifice 12.

The method for manufacturing the puzzle game in accordance with the invention consists of designing the laminated film 26 to provide a bi-dimensional image of the outer surface of the building-like structure. The lithographic film is then adhesively bonded to a sheet of foam backing. The resulting lamination is die-cut to form in a single operation all the pieces of the puzzle game. The die-cutting of the corner elements 16 involves the step of making cutting lines in the backing material to form the internal peripheral edges of the backing members 18, 20, 22 and 24, contoured to provide the straight tenon and mortise joint members 32/34 and 38/40. This cutting operation is performed at a controlled depth in order to completely sever the backing material without, however affecting the integrity of the lithographic film 26 within

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the boundaries of the corner element 16. The resulting corner element 16 is only a semifinished piece because the crossing strips of backing material (not shown in the drawings) between the backing members 18, 20, 22 and 24 (extending along the hinge lines 32 and 36) preclude any hinge function. To render the corner element 16 fully functional, those strips must be peeled-off from the lithographic film 26 to provide the necessary clearance along the hinge lines. In order to allow the removal of those waste strips, the adhesive used to bond the backing material and the lithographic film should have the appropriate release properties. It should be pointed out that after the removal of the waste strip the adhesive remaining on the lithographic film can to some degree bond with the peripheral edge of the backing member that occupies the place of the waste strip when the corner element 16 is folded. This feature is best shown in Figure 6. The peripheral edge 50 of the backing member 18 engages the portion 52 of the lithographic film that previously was bonded to the waste strip. The adhesive bond between the peripheral edge 50 and the lithographic film portion 52, albeit weak, contributes to retain the backing members 18 and 20 in the corner configuration.

To facilitate the identification of the waste strips that the user needs to remove from the semifinished corner element, they may be provided with a visual queue, such as

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a contrasting colour applied uniformly or as a pattern, or indicia in the form of combination of letters forming an intelligible message of the type "PEEL HERE", for instance. The visual queue is applied by printing, silk screening or any other appropriate process.

A variant of the corner element 16 is shown in Figure 7. The difference with the previous embodiment resides in the absence of interlocking engagement between the backing members. The vertical hinge line 46 and the horizontal hinge line (not shown in the drawings) are provided by forming between the backing members parallel walled channels 48 having a width A that is equal or exceeds the thickness of the backing material. It should be noted the backing members can be brought to the corner configuration by bending the lithographic film along either one of two possible fold lines A and B shown in the drawings. In order to specify which fold line the user should make in order to properly assemble the corner element, a visual queue 54 is printed on the lithographic film in the hinge area 46. Such visual queue is in the form of arrows pointing toward the correct fold line (line B in the example shown). The visual queue 54 is normally hidden by the waste strip and becomes visible only when the latter is removed from the lithographic film 26.

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This variant is manufactured as described earlier in connection with the corner element 16 except that the pattern for cutting the inner peripheral edges of the backing members is changed.

5

In a further variant (not shown in the drawings) the backing members 22 and 24 provided for retaining the main backing members 18 and 20 in the folded condition, may be  
10 dispensed with. In this embodiment, the interlocking engagement with adjoining wall pieces maintains the corner element in the folded condition.

In a yet another variant (not shown in the drawings)  
15 the corner element is designed to form a multi-corner structure when assembled. For example a two-corner unit is provided by laminating the lithographic film with three backing members in a spaced apart relationship forming therebetween two hinge areas. This embodiment is  
20 particularly suitable for elevated tower structures in the puzzle game. A complete section of the tower structure, which is say square in cross-section, thus having four walls joined at right angles could be made from a single piece having five (5) horizontally aligned backing members  
25 forming between them four vertical hinges that materialize the corners of the tower section. The three intermediate backing members have a width corresponding to the

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transverse dimension of a tower wall. The backing members forming the ends of the tower section are designed to interlock by means of a male/female joint members in order to close the ends of tower section. The tower of the puzzle game is erected by stacking several assembled tower sections one on top of the other. The stacked sections interlock by complementary male/female joints.

The corner piece in accordance with the invention can be modified and refined to suit specific applications, without departing from the spirit of the invention. Therefore, the above description of invention should not be interpreted in any limiting matter. The scope of the invention is defined in the appended claims and their equivalents.

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## WE CLAIM:

1. A corner element of a puzzle that constitutes a three-dimensional pictorial representation of a building structure, said corner element comprising:

5           - first and second generally planar backing members;

          - a sheet of flexible material bonded to said first and second backing members in a face-to-face relationship therewith, said first and second backing members including respective peripheral edge portions in a spaced apart relationship defining therebetween a hinge area, whereby  
10       said backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at said hinge area;

          - a peripheral edge of said corner element including  
15       at least one joint member capable of interlocking engagement with a complementary joint member of another element of the puzzle; and

          - said corner element also including an image-bearing surface that constitutes an individual pictorial entity  
20       contributing to a complete representation of the building structure.

2. A corner element as defined in claim 1, wherein the joint member on the peripheral edge of said corner element  
25       is selected from the group consisting of female joint member and male joint member.

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3. A corner element as defined in claim 2, wherein the joint member on the peripheral edge of said corner element includes either one of a flaring tenon and tapered mortise.

5

4. A corner element as defined in claim 1, wherein each said backing members includes a joint member capable of interlocking engagement in a plane with a complementary joint member of another element of the puzzle, whereby  
10 allowing to build-up a wall of the building structure.

5. A corner element as defined in claim 4, wherein the joint member on each said backing members is selected from the group consisting of female joint member and male joint  
15 member.

6. A corner element as defined in claim 5, wherein the joint member on each said backing members includes either one of a flaring tenon and tapered mortise.

20

7. A corner element as defined in claim 1, wherein said first and second backing members are capable of mutual interlocking engagement upon acquisition of said non-planar relationship.

25

8. A corner element as defined in claim 7, wherein said first and second backing members include complementary

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tenon and mortise joint members at said hinge area, said tenon and mortise joint members engaging one another when said first and second backing members acquire said non-planar relationship.

5

9. A corner element as defined in claim 1, further comprising means for locking said first and second backing members in a non-planar relationship.

10

10. A corner element as defined in claim 1, further comprising:

- third and fourth generally planar backing members bonded in a face-to-face relationship to said sheet of flexible material, said third and fourth backing members being hingedly joined to said first and second backing elements by the intermediary of said sheet of flexible material, whereby said third and fourth backing members are capable of acquiring a generally co-planar relationship when said first and second backing members are set in a predetermined non-planar angular relationship.

20

25

11. A corner element as defined in claim 10, wherein said third and fourth backing members are capable of interlocking engagement upon acquisition of said co-planar relationship to lock said first and second backing members in said predetermined non-planar angular relationship.

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12. A corner element as defined in claim 11, wherein said third and fourth backing members include complementary joint members interlocking together when said third and fourth backing members acquire said co-planar relationship.

13. A corner element as defined in claim 10, wherein either one of said first and second backing members and either one of said third and fourth backing members include complementary tenon and mortise joint members engaging one another when said third and fourth backing members acquire said co-planar relationship.

14. A corner element as defined in claim 13, wherein said sheet of flexible material is a lithographic film.

15. A corner element as defined in claim 13, wherein said sheet of flexible material is adhesively bonded with to said backing members.

16. A corner element as defined in claim 1, wherein said backing members are made of polymeric foam.

17. A blank of a corner element for use in a puzzle that constitutes a three-dimensional pictorial representation of a building structure, said blank comprising:

- first and second generally planar backing members;

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- an intermediate member between said first and second backing members;

- a sheet of flexible material bonded to said first and second backing members and to said intermediate member in a face-to-face relationship therewith, said intermediate member being removable from blank to form between said first and second backing members a hinge area, whereby said first and second backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at said hinge area;

- a peripheral edge of said blank including at least one joint member capable of interlocking engagement with a complementary joint member of another element of the puzzle; and

- said blank also including an image-bearing surface that constitutes an individual pictorial entity contributing to a complete representation of the building structure.

18. A blank as defined in claim 17, wherein the joint member on the peripheral edge of said blank is selected from the group consisting of female joint member and male joint member.

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19. A blank as defined in claim 18, wherein the joint member on the peripheral edge of said blank includes either one of a flaring tenon and tapered mortise.

5 20. A blank as defined in claim 17, wherein each said backing members includes a joint member capable of interlocking engagement in a plane with a complementary joint member of another element of the puzzle, whereby allowing to build-up a wall of the building structure.

10

21. A blank as defined in claim 20, wherein the joint member on each said backing members is selected from the group consisting of female joint member and male joint member.

15

22. A blank as defined in claim 21, wherein the joint member on each said backing members includes either one of a flaring tenon and tapered mortise.

20 23. A blank as defined in claim 17, wherein said first and second backing members are capable of mutual interlocking engagement upon acquisition of said non-planar relationship.

25 24. A blank as defined in claim 23, wherein said first and second backing members include complementary tenon and mortise joint members at said hinge area, said tenon and

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mortise joint members engaging one another when said first and second backing members acquire said non-planar relationship.

5        25. A blank as defined in claim 17, further comprising means for locking said first and second backing members in a non-planar relationship.

10        26. A blank as defined in claim 17, further comprising:  
         - third and fourth generally planar backing members;  
         - an intermediate element between said third and  
fourth backing members, said sheet of flexible material  
being bonded in a face-to-face relationship to said third  
and fourth backing members and to said intermediate  
15        element, said intermediate element being removable from  
said blank to form a hinge zone between said first and  
second backing members and said third and fourth backing  
members, whereby allowing said third and fourth backing  
members to acquire a generally co-planar relationship by  
20        bending movement of said flexible sheet at said hinge zone  
when said first and second backing members are set in a  
predetermined non-planar angular relationship.

25        27. A blank as defined in claim 26, wherein said third  
and fourth backing members are capable of interlocking  
engagement upon acquisition of said co-planar relationship

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to lock said first and second backing members in said predetermined non-planar angular relationship.

5 28. A blank as defined in claim 27, wherein said third and fourth backing members include complementary joint members interlocking together when said third and fourth backing members acquire said co-planar relationship.

10 29. A blank as defined in claim 26, wherein either one of said first and second backing members and either one of said third and fourth backing members include complementary tenon and mortise joint members engaging one another when said third and fourth backing members acquire said co-planar relationship.

15

30. A blank as defined in claim 17, wherein said sheet of flexible material is a lithographic film.

20 31. A blank as defined in claim 17, wherein said sheet of flexible material is adhesively bonded with to said first and second backing members and to said intermediate member.

25 32. A blank as defined in claim 26, wherein said sheet of flexible material is adhesively bonded with to said third and fourth backing members and to said intermediate element.

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33. A blank as defined in claim 17, wherein said third and fourth backing members and said intermediate element are made of polymeric foam.

5 34. A blank as defined in claim 17, wherein said intermediate member includes a visual queue to assist a user locating said intermediate member.

10 35. A puzzle game for assembly into a three-dimensional building-like structure including:

- a first set of planar wall pieces capable of interlocking in a plane to form a first wall of the building structure;

- a second set of planar wall pieces capable of interlocking in a plane to form a second wall of the building-like structure, each said wall pieces including an image-bearing surface constituting an individual pictorial entity contributing to a complete representation of the building-like structure;

20 - a corner piece for establishing a union between said first and second walls, said corner piece including:

- a) first and second generally planar backing members;

- b) a sheet of flexible material bonded to said first and second backing members in a face-to-face relationship therewith, said first and second backing members including respective peripheral edge portions in

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a spaced apart relationship defining therebetween a hinge area, whereby said backing members are capable of acquiring a corner configuration by bending movement of said sheet of flexible material at said hinge area;

5                   c) a peripheral edge of said corner piece including a first joint member capable of interlocking engagement with a complementary joint member of a wall piece from said first set in order to unite said corner piece with said first wall, and a second joint member  
10                   capable of interlocking engagement with a complementary joint member of a wall piece from said second set in order to unite said corner piece with said second wall; and

                  d) said corner piece including an image-bearing surface that constitutes an individual pictorial entity  
15                   contributing to a complete representation of the building-like structure, whereby upon assembly of said pieces the image-bearing surfaces thereof uniting visually to provide image continuity over said first wall, said second wall and said corner piece.

20

36. A puzzle game for assembly into a three-dimensional building-like structure including:

                  - a first set of planar wall pieces capable of interlocking in a plane to form a first wall of the  
25                   building structure;

                  - a second set of planar wall pieces capable of interlocking in a plane to form a second wall of the

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building-like structure, each said wall pieces including an image-bearing surface constituting an individual pictorial entity contributing to a complete representation of the building-like structure;

5           - a blank of corner piece for use in establishing a union between said first and second walls, said blank including:

          a) first and second generally planar backing members;

10           b) an intermediate member between said first and second backing members;

          c) a sheet of flexible material bonded to said first and second backing members and to said intermediate member in a face-to-face relationship therewith, said  
15   intermediate member being removable from blank to form between said first and second backing members a hinge area, whereby said first and second backing members are capable of acquiring a non-planar angular relationship by bending movement of said sheet of flexible material at  
20   said hinge area in order to form said corner piece;

          d) a peripheral edge of said blank including a first joint member capable of interlocking engagement with a complementary joint member of a wall piece from said  
25   first set in order to unite said corner piece with said first wall, and a second joint member capable of interlocking engagement with a complementary joint member

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of a wall piece from said second set in order to unite said corner piece with said second wall; and

d) said blank including an image-bearing surface that constitutes an individual pictorial entity contributing to a complete representation of the building-like structure, whereby upon assembly of said pieces the image-bearing surfaces thereof uniting visually to provide image continuity over said first wall, said second wall and said corner piece.

37. A corner element as defined in claim 1, wherein said hinge area includes a pair of hinge lines along which said sheet of flexible material can alternatively fold when said first and second backing members are brought to a non-planar configuration.

38. A corner element as defined in claim 37, further comprising a visual queue specifying to a user a predetermined fold line along which said sheet of flexible material is to be folded when said first and second backing members are brought to a non-planar configuration.

39. A corner element as defined in claim 38, wherein said visual queue is a mark on said lithographic film.

40. A corner element as defined in claim 1, wherein said first and second backing members define therebetween an

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elongated channel forming said hinge area, said elongated channel having generally parallel side walls.

5 41. A blank as defined in claim 17, comprising a visual queue indicating to the user to fold said sheet of flexible material along a predetermined one of at least two possible fold lines located in said hinge area, in order to bring said first and second backing members in a non-planar configuration.

10 42. A blank as defined in claim 41, wherein said visual queue is a mark on said sheet of flexible material.

15 43. A corner element as defined in claim 1, wherein said sheet of flexible material constitutes said image bearing surface.

20 44. A blank as defined in claim 17, wherein said sheet of flexible material constitutes said image bearing surface.

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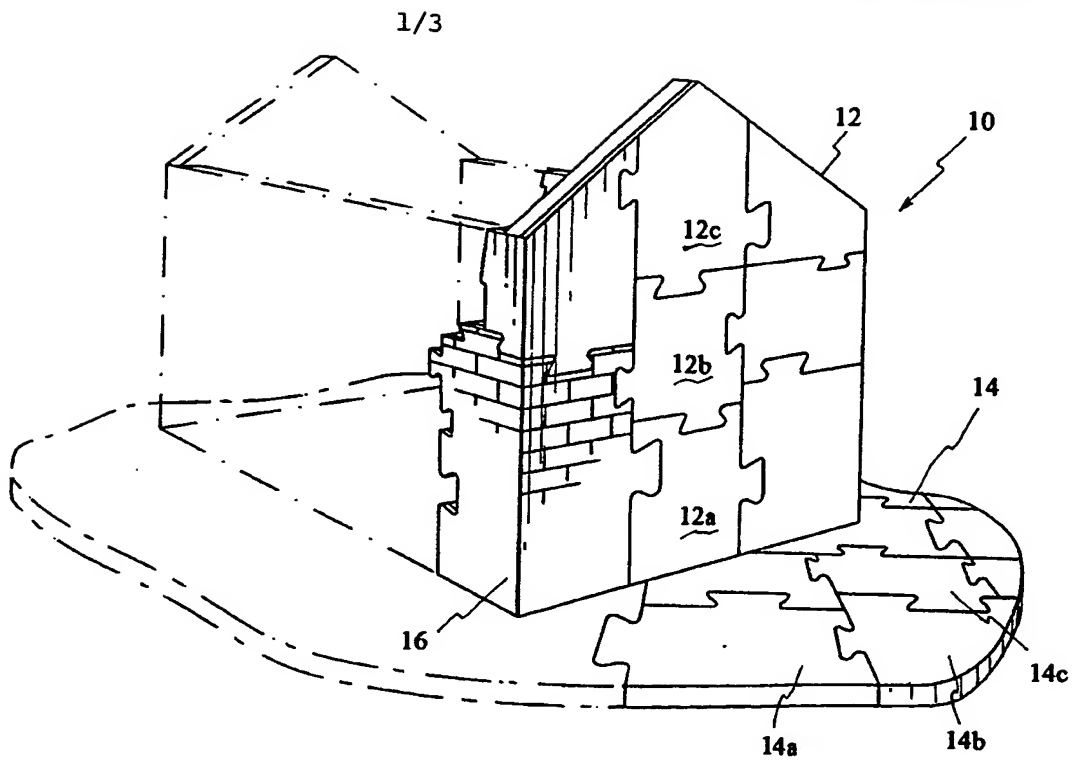


Fig.1

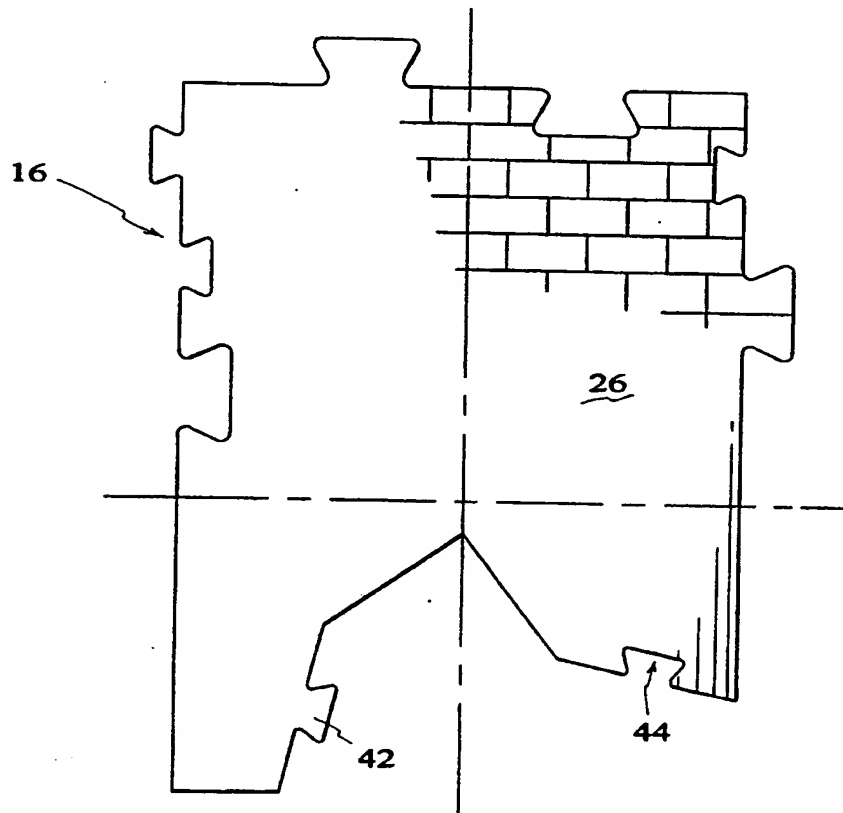


Fig.2

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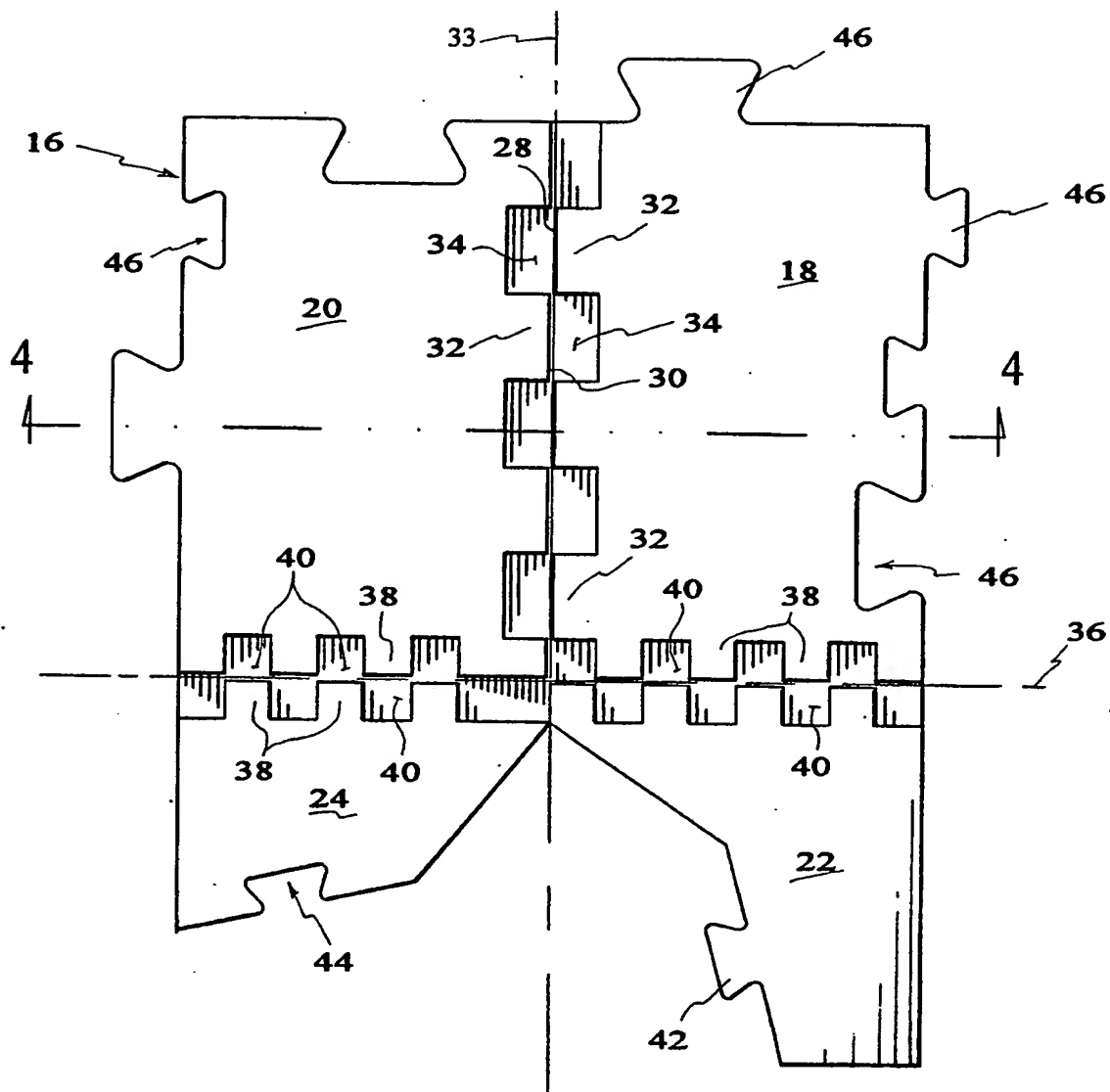


Fig.3

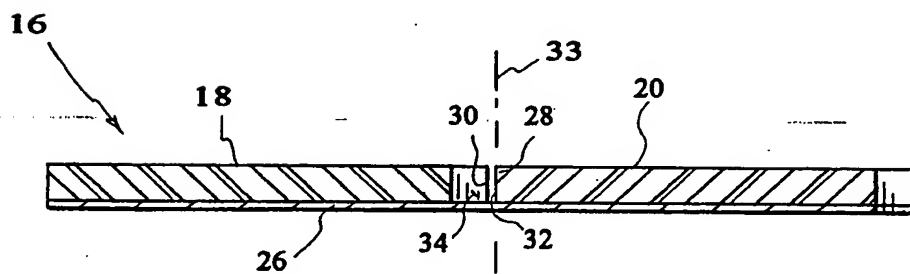


Fig.4

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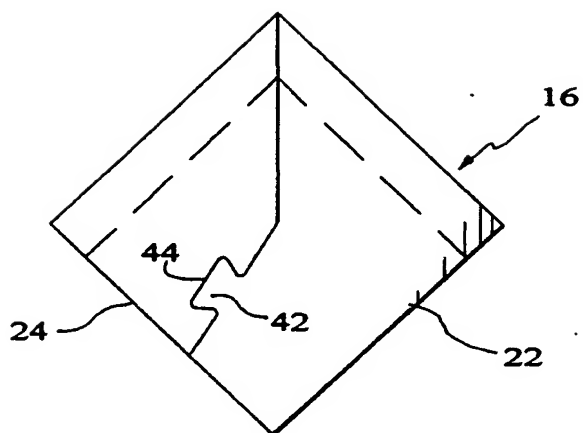


Fig. 5

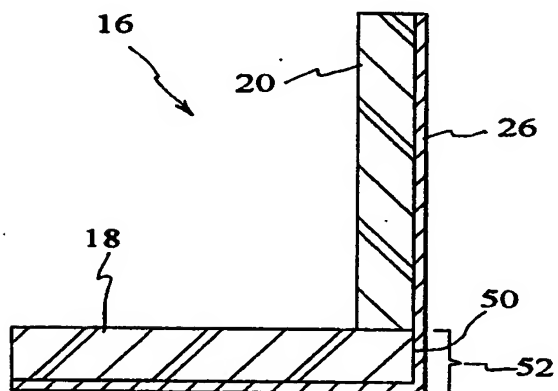


Fig. 6

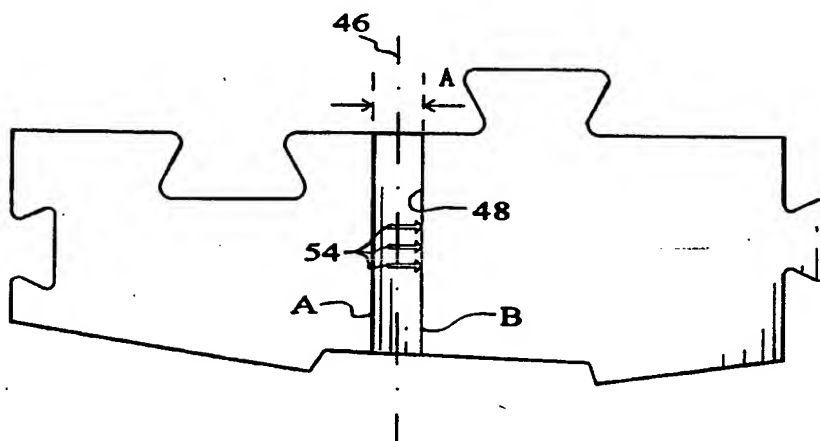


Fig. 7

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# INTERNATIONAL SEARCH REPORT

Int ional Application No  
PCT/CA 95/00305

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 A63F9/12 A63H33/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 A63F A63H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US,A,4 824 112 (ROY) 25 April 1989 see column 5, line 46 - line 61; figure 7B ---	1-44
Y	EP,A,0 531 662 (CANADA INC.) 17 March 1993 see column 4, line 3 - line 53 ---	1-44
A	US,A,4 254 574 (STOCK) 10 March 1981 see claim 1 -----	9-13, 25-29

☐ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search

25 October 1995

Date of mailing of the international search report

07. 11. 95

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,  
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Glas, J

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 95/00305

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4824112	25-04-89	NONE	
EP-A-531662	17-03-93	CA-C- 2050969 US-A- 5251900	31-05-94 12-10-93
US-A-4254574	10-03-81	NONE	



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